Title Page

Title: XXXX

Issue: XXXX

Date: XXXX

Abstract: XXXX

Written_____Name_____Date

Checked_____Name_____Date

Approved_____Name_____Date

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1 Introduction

Information. Statements preceded by the word 'Information' are for guidance only. There are XX of them in this specification.

Requirement. Statements preceded by the word 'Requirement' are to be considered as explicit requirements for the unit. There are XX of them in this specification. Each has it's own paragraph number, and should be able to be understood and tested in isolation form other statements preceded by the word 'Requirement'.

1.1 Information. Scope. This specification describes the parameters which require to be met for the project power supply.

1.2 Overview

1.2.1 Information. Project Overview. The intended use is XXXX. The unit is intended to be deployed in the following Countries:- XXXX. The unit must be able to operate reliably in XXXX environments.

1.3 Information. Reference Documents. The following documents are referenced in this specification:-

47 CFR 15	EMC Emissions
Bellcore requirements.	
BTNR2511 current issue	
CISPR 11	EMC Emissions
CISPR 22	EMC Emissions
Def Stan 61-5 part	
Def Stan 59-1 Part 3 issue 5	
EC Low Voltage Directive 73/23	
EC EMC Directive	
EC CE Marking Directive	
EN41003	Safety - Telecoms
EN55011	EMC - Emissions
EN55022	EMC - Emissions
IEC80l	EMC Immunity
IEC950	Safety of Information technology equipment
IEC1000	EMC
MIL-HDBK217	US Military Reliability

1.4 Information. Document History

First issue
Modified

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1.5 Language Style

1.5.1 Information. Within this specification, the terms 'shall' and 'must' are used to express provisions which are binding or mandatory. The terms 'should' or 'may' are used to express provisions which are desirable but not mandatory. The term 'will' shall be interpreted as an expression of future intent.

1.6 Information. Values. Within this specification all values will be interpreted as meaning true values inclusive of measurement error and tolerance. Where a tolerance is given then this will be interpreted as absolute.

1.7 Information. Definition of Terms. The Definition of Terms used in this specification are shown below:-

The Normal operating condition is defined as:-

Nominal input voltage.
Nominal input frequency.
Nominal output voltages.
Output currents at fixed 100% of Nominal.
Ambient temperature between 18 and 25 C.
Connected and used in accordance with operating instructions.

The General operating conditions are defined as:-

Input voltage within operating input voltage range.
Input frequency within normal input frequency range.
Output voltages adjusted within minimum to maximum limits.
Output currents between minimum and maximum.
Ambient temperature within operating ambient temperature range.
Humidity within operating humidity range.
Connected and used in accordance with operating instructions.

1.8 Information. Abbreviations. The following abbreviations are used in this specification:-

BSI	British standards Institute
C of C	Certificate of Conformity
CE	Conformite Europeanne
D of C	Declaration of Conformity
DC	Direct Current
EMC	ElectroMagnetic Compatibility
EMP	ElectroMagnetic Pulse
i/p	Input
LED	Light Emitting Diode
o/p	Output
PSU	Power Supply Unit
SELV	Safety Extra Low Voltage

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SMPS	Switch Mode Power Supply
UL	Underwriters Laboratory

1.9 Appropriate technology

1.9.1 Requirement. If the unit employs microprocessors, software, or has any date cognisance, then the supplier must make a written declaration that the Century Date Change will not affect operation of the unit or systems in which it is embedded.

1.9.2 Requirement. The unit shall not require static sensitive handling precautions. Connection terminals for input, output, and signals shall be of such impedance that static phenomena are dissipated without affecting static sensitive devices inside (if any).

1.10 External Components

2 Approval Issues

2.1 Requirements. Legality. The unit is to be CE marked for the Low Voltage Directive, EMC Directive and the CE Marking Directive. The unit is to be UL approved.

2.2 Safety

2.2.1 Requirement. The unit is to be approved to IEC95O and derivatives, EN60950, UL1950, and CSA950. The unit will/will not be required to meet the national extensions for Scandinavia. The unit shall meet the requirements of IEC950 and the named derivatives when used in accordance with the operating instructions. The contents of the operating instructions shall be agreed with (COMPANY NAME), in order to allow (COMPANY NAME)'s goals to be met. No additional external components should be needed for the unit to meet these standards.

2.2.2 Requirement. The unit will be operated in a pollution degree III environment according to the definitions of IEC950.

2.2.3 Requirement. The unit is required to provide Reinforced insulation between the input and the output ports.

2.3 Approvals

2.3.1 Requirement. Safety approval shall be carried out by BSI or a similarly

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accredited body. The safety approval shall be to IEC950 and the named derivatives. Production units shall be marked to show these approvals. The manufacturer will also provide a Declaration of Conformity to the Low Voltage Directive.

2.3.2 Requirement. The manufacturers Declaration of Conformity to the EMC Directive shall be based on test results from a recognised competent body. Any other claims the manufacturer may make as to the EMC performance of the unit should be similarly substantiated.

2.3.3 Requirement. The manufacturer shall fulfil the requirements of the CE Marking Directive by applying the CE mark to the equipment, in such a place as it is visible with the unit in situ.

2.4 Industry specific approvals

2.4.1 Requirement. The unit is to meet BTNR2511 current issue. No additional external components should be needed for the unit to meet this standard.

2.4.2 Requirement. The unit is to meet EN41003. No additional external components should be needed for the unit to meet this standard.

2.4.3 Requirement. The unit is to meet the following Bellcore requirements:-

No additional external components should be needed for the unit to meet these requirements.

2.5 Information. Restrictions on use. The manufacturer is allowed to include the following restrictions on use in the “Instructions for Use”:-

To be used in a restricted area only.
To be serviced by authorised personnel only.
To be used as per the supplied instructions only.

Any other Restrictions on Use to be agreed between supplier and (COMPANY NAME).

2.6 Requirement. Electric strength tests. The unit must be designed to meet the electric strength test requirements of IEC950 and the named derivatives. Port voltage types to be as per those declared in this specification. The units are required to be 100% production tested to the electric strength test requirements.

2.7 EMC - emissions

2.7.1 Information. The applicable generic standard is EN50081-1

2.7.2 Requirement. The unit is to meet the currently known requirements.

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These are rapidly condensing to CISPR 11 and 22 but written as 47 CFR 15 for the USA, and EN55011 /22 for Europe. No additional external components should be needed for the unit to meet these standards. The unit shall meet these requirements when in normal operating conditions.

2.8 EMC - immunity

2.8.1 Requirement. To meet IEC801 and IEC1000 (EN61000), with no external components, and under normal operating conditions, as described below:-

To meet IEC 1000-4-1	Level =
To meet IEC 1000-4-2	Level =
To meet IEC 1000-4-3 electromagnetic field susceptibility.	Level =
To meet IEC 1000-4-4 fast transients.	Level =
To meet IEC 1000-4-5 surges line to line.	Level =
To meet IEC 1000-4-6 conducted disturbances by RFI.	Level =
To meet ENV50204 mobile phone 900MHz test.	Level =

2.9 Requirement. EMC - special requirements. The unit is to meet the requirements of BTNR2511 current issue. No additional external components should be needed for the unit to meet this standard. In particular the unweighted voiceband noise requirements must be met without concession.

2.10 Requirement. Leakage current. To be measured and stated in all relevant documentation. The supplier shall provide a strategy for (COMPANY NAME) to install the units as required and meet the IEE Regulations, Health and Safety at Work Regulations, and other national requirements within the countries of deployment listed in the introduction in this specification.

2.11 Requirement. Creepage and clearance. Creepage and clearance distances to meet the requirements of IEC950 and the named derivatives when used in a pollution degree III environment.

2.12 Requirement. Input to Output Isolation. The unit is to meet the requirements of IEC950 and the named derivatives, based on the port voltage types declared elsewhere in information paragraphs in this specification.

2.13 Requirement. Output to Output Isolation. The unit is to meet the requirements of IEC950 and the named derivatives, based on the port voltage types declared elsewhere in information paragraphs in this specification.

2.14 Requirement. Input to Case Isolation. The unit is to meet the requirements of IEC950 and the named derivatives, based on the port voltage types declared elsewhere in information paragraphs in this specification.

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2.15 Requirement. Output to Case Isolation. The unit is to meet the requirements of IEC950 and the named derivatives and EN41003, based on the port voltage types declared elsewhere in information paragraphs in this specification.

2.16 Information. Nomination of Port Voltages (e.g. SELV). Inputs, Outputs and signal ports are classified for the purposes of IEC950 and it's derivatives in the relevant chapters.

2.17 Requirement. Smoke Emission. Under all normal conditions or for any single fault, including an open or short circuit at an input or output of the power supplies, no smoke shall be emitted.

3 Input Description

Information. Description of input source:

3.1 Information. The Nominal input voltage will be XX volts. All input measurements will take place as near to the input terminals as possible.

3.2 Requirement. The Normal input voltage range will be from XX to XX volts. The unit shall meet this requirement when in general operating conditions.

3.3 Requirement. The Operating input voltage range will be from XX to XX volts. The unit shall meet this requirement when in normal operating conditions.

3.4 Requirement. The Absolute input voltage range is from XX to XX volts. The unit shall suffer no component failure when connected to a voltage in the absolute range specified above, for an indefinite period.

3.5 Requirement. The Input undervoltage cut-off point will be at XX volts. Operation of the unit shall be inhibited when the input voltage falls below the value specified above. The inhibit shall be removed when the input voltage rises above this value plus an allowance for hysteresis to prevent instability.

3.6 Requirement. The Input overvoltage cut-off point will be at XX volts. Operation of the unit shall be inhibited when the input voltage rises above the value specified above. The inhibit shall be removed when the input voltage falls below this value plus an allowance for hysteresis to prevent instability.

3.7 Requirement. The nominal input frequency is XX Hz. The Normal input frequency range is from XX to XX Hz. The unit shall meet this requirement when in normal operating conditions.

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3.8 Requirement. The Input current form will be XXXX. The unit shall meet this requirement when in normal operating conditions.

3.9 Requirement. The Input current when there is no output load will be less than XX amps at nominal input voltage and normal operating conditions.

3.10 Requirement. The Input current when the unit is inhibited will be less than XX amps under normal operating conditions.

3.11 Requirement. The Start-up input current form will be XXXX. The unit shall meet this requirement when in normal operating conditions.

3.12 Requirement. The Inrush current will be less than XX amps. The unit shall meet this requirement when in normal operating conditions.

3.13 Requirement. The unit will/will not Soft start.

3.14 Requirement. The Start up delay will be between XX and XX seconds. The unit shall meet this requirement when in normal operating conditions.

3.15 Requirement. Special requirements

3.16 Requirement. The unit must survive Input voltage surges of XX volts. The unit shall meet this requirement when in normal operating conditions.

3.17 Requirement. The unit will provide normal output voltage and current during an Input voltage sag to XX volts for XX mS.

3.18 Requirement. The unit must be able to operate with a ripple voltage present on the Input of XX volts. The ripple frequency will be in the band XX to XX Hz. This must not excite any resonances in the input filter circuitry.

3.19 Requirement. Low Input voltage warning. An active low signal shall indicate when the input voltage is below XX volts +/- XX volts.

3.20 Information. For the purposes of IEC950 and the named derivatives, the input port is declared to be a Hazardous voltage.

3.21 Requirement. The unit is/is not required to be protected against Reverse Polarity.

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4 Conversion Description

4.1 Requirement. Efficiency/Dissipation. Efficiency must be greater than XX% at nominal input voltage and rated output voltage and current. The unit shall not dissipate more than XX Watts under normal operating conditions.

4.2 Requirement. Hold-up. There are no hold up requirements.

4.3 Requirement. Frequency of operation. The switching frequency is required to be fixed/allowed to be variable. For system requirements, the following frequencies are preferred:- XX, XX or XX KHz. Due to the sensitivity of the load, the following frequency bands are to be avoided:- XX to XX KHz, XX to XX KHz, and XX to XX KHz. The upper limit for the switching frequency shall be XX KHz. The lower limit for the switching frequency shall be XX KHz.

4.4 Requirement. Audible Noise. To be reviewed at the time of first model achieving reliable operation at rated output power. The unit shall meet this requirement when in normal operating conditions.

4.5 Requirement. Thermal protection. The unit should protect itself against an uncontrolled overtemperature. Upon an overtemperature trip the unit should shut itself off. When the temperature has fallen within normally allowed limits the unit shall start up again automatically. The thermal trip shall not operate during general operating conditions.

4.6 Cooling

4.6.1 Information. The cooling method foreseen for the unit is forced air/conduction/convection.

4.6.2 Information. Forced air:- The direction of air flow will be XXXX . The fan will be powered by AC/DC. At nominal voltage the air flow rate will be XX cfm. The fan will be inside/outside the unit. The unit must survive a fan failure. The unit shall shut down if a high load and/or a high ambient temperature cause the temperature trip to operate. Due to the environment an Air filter will/will not be fitted. Conduction:- The cold wall area will be XX by XX mm. The Cold wall temperature range will be from XX to XX degrees C. Thermal jointing will/will not be permitted. Convection:- The unit will be situated as follows:-

4.6.3 Requirement. The unit is to be reliable and safe in operation, when subject to the above cooling method and operated under general operating conditions.

4.7 Requirement. Reliability. The MTBF is to be calculated according to

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MIL-HDBK217 current edition, Ground Benign 30 C, and Ground Fixed 40 C. The calculation is not to include any electronics, the sole purpose of which is front panel indication. The target for the MTBF of the unit has been set at XX hours for Ground Benign 30 C, and XX hours for Ground Fixed 40 C.

4.8 Requirement. Lifetime. The design lifetime of the unit is to be 20 years. Assume normal operating conditions, except Ta = (Tamax - 20) C.

4.9 Requirement. Repairability. The unit is to be repairable on a return to manufacturer basis. The turn around time is to be less than 6 weeks for 90% of repairs.

4.10 Requirement. Hiccuping. The unit is/is not allowed to hiccup under no load and short circuit conditions.

4.11 Requirement. Stability. The unit shall operate in a stable manner when under general operating conditions.

4.12 Requirement. Start Time. The unit shall start within 1 second of application of a voltage within the normal operating input range. Within this time the output shall reach it's final voltage value.

5 Output Description

5.1 Output 1

5.1.1 Information. The Nominal Output Voltage shall be XX volts. All measurements shall take place as near to the output terminals as possible.

5.1.2 Requirement. The Minimum Output Voltage shall be more than XX volts. The unit shall meet this requirement when in general operating conditions.

5.1.3 Requirement. The Maximum Output Voltage shall be less than XX volts. The unit shall meet this requirement when in general operating conditions.

5.1.4 Requirement. The Output Voltage Ripple shall be less than XX volts RMS. The unit shall meet this requirement when in normal operating conditions.

5.1.5 Requirement. The Output Voltage Spikes shall be less than XX volts peak to peak. The bandwidth of measurement shall be DC to 20 MHz. The measurement method shall be agreed between the supplier and (COMPANY NAME). The unit shall meet this requirement when in normal operating conditions.

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5.1.6 Requirement. Output Over Voltage Protection (OVP) is/is not required. The operating level shall be XX volts. An OVP trip may be reset only by removal and re-application of the input voltage.

5.1.7 Requirement. Output Remote Sense is/is not required. It shall be able to compensate for a voltage drop up to XX volts per line.

5.1.8 Requirement. Output Rise time at start up must be between XX and XX seconds. It must also be monotonic and free from overshoot. The unit shall meet this requirement when in general operating conditions.

5.1.9 Requirement. The Output Voltage is required to be adjusted from inside/outside the unit over the range XX volts to XX volts.. The unit shall meet this requirement when in normal operating conditions.

5.1.10 Requirement. The Output Voltage is required to be able to be set with an accuracy of XX volts. This shall correspond to not less than 90 degrees turn on the potentiometer.

5.1.11 Requirement. The Output Voltage shall have a Temperature Co-efficient of less than XX volts per degree C, over the range XX to XX degree C. The unit shall meet this requirement when in general operating conditions.

5.1.12 Requirement. The unit is required to exhibit a Line Regulation of less than XX volts over the input voltage range XX to XX volts. The unit shall meet these requirements when in general operating conditions.

5.1.13 Requirement. The Output Voltage Static Load Regulation shall be less than XX volts over the output current range XX to XX amps. The unit shall meet these requirements when in general operating conditions.

5.1.14 Requirement. The Output Voltage Dynamic Load Regulation shall be

5.1.15 Information. The Output Voltage Voltage Type according to IEC950 and the named derivatives shall be SELV.

5.1.16 Requirement. The Output port is/is not required to be able to be connected in Series with XX like output ports.

5.1.17 Requirement. The Output port is/is not required to be able to be connected in Parallel with XX like output ports. The current sharing shall be between XX amps of each other.

5.1.18 Information. The Nominal Output Current will be approximately XX amps.

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5.1.19 Requirement. The Minimum Output Current will be XX amps. The unit shall meet this requirement when in general operating conditions.

5.1.20 Requirement. The Maximum Output Current will be XX amps. The unit shall meet this requirement when in general operating conditions.

5.1.21 Requirement. The Output Current Limit characteristic is of the XXXX type. The unit shall meet this requirement when in general operating conditions.

5.1.22 Requirement. The Output shall be proof against a Short Circuit of indefinite duration. The unit shall meet this requirement when in general operating conditions.

5.1.23 Requirement. The Output shall be subject to a Capacitive Load of XX uF. The unit should be able to start up cleanly under this condition.

5.1.24 Requirement. The output is required to be Open circuit proof indefinitely. The unit shall meet this requirement when in general operating conditions.

5.1.25 Requirement. The unit shall be proof against an Overload. An overload is defined as a load between the maximum load and a short circuit. The unit shall meet this requirement when in general operating conditions.

5.1.26 Requirement. Output 1 shall exhibit the following Static Cross regulation characteristic:-

5.1.27 Requirement. Output 1 shall exhibit the following Dynamic Cross Regulation characteristic:-

5.2 Output 2 - see paragraph 5.1
etc.
etc.

6 Features

6.1 Requirement. Front Panel Controls. The following front panel controls shall be provided:-

6.2 Requirement. Front Panel Indications. The following front panel indications shall be provided:-

6.3 Requirement. Overcurrent Protection Devices. There shall be input and

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output overcurrent devices fitted in accordance with IEC950 and the named derivatives. If required for system operation these shall be manually operable.

6.4 Requirement. Input Connectors. The input connector shall be of type XXXX. The input connector shall be located on the XXXX.

6.5 Requirement. Output Connectors. The output connector shall be of type XXXX. The output connector shall be located on the XXXX.

6.6 Requirement. Signal Connectors. The signal connector shall be of type XXXX. The signal connector shall be located on the XXXX.

6.7 Requirement. Trips. Operation of the unit shall be tripped off if any of the following circumstances are detected:- Input Overvoltage, Input Undervoltage, Unit Overtemperature, Output Overvoltage.

6.8 Requirement. Alarms. The following alarms shall be provided:- Input Overvoltage, Input Undervoltage, Unit Overtemperature, Output Overvoltage, Output Undervoltage, Output Overcurrent.

6.9 Warnings

6.10 Externally accessible adjustments

6.10.1 Requirement. The following parameters are required to be adjustable from the front panel with a tool:-

6.10.2 Requirement. The following parameters are required to be adjustable from the front panel without a tool:-

6.11 Control Inputs:- Function, Voltage levels, Current Levels, Voltage type (e.g. SELV)

6.12 Output Signals:- Function, Voltage levels, Current Levels, Voltage type (e.g. SELV)

6.13 Requirement. Output ORing Diodes. Internal/External ORing diodes are/are not required for system operation.

6.14 Requirement. Accessories. The following accessories are required to be offered:- Connector sets, Lead sets, Heatsinks, Thermal pads, Fans, Shelves, Remote Control Units, Brackets, Covers, Labels, Installation kits, Installation tools, Replacement Filter elements, Replacement fuses.

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7 Environment

7.1 Requirement. The Operating Ambient Temperature Range is from XX C to XX C. The unit shall meet this requirement when in normal operating conditions. Under these conditions temperatures reached by parts of the unit shall not violate the requirements of IEC950 or the named derivatives. Derating will/will not be allowed.

7.2 Requirement. The Storage Temperature Range is from XX C to XX C. Within this temperature range the unit shall be housed within the packaging originally supplied, and no external connections will be made.

7.3 Requirement. The Operating Humidity Range is from XX to XX %rh. The unit shall meet this requirement when in normal operating conditions.

7.4 Requirement. The unit shall be protected against ingress of solids to the degree IPXX.

7.5 Requirement. The unit shall be protected against ingress of moisture to the degree IPXX.

7.6 Shock.

7.6.1 Requirement. The unit is to survive these shock levels when in normal operating conditions. Shock, half sinusoidal, acceleration amplitude = 100g, bump duration = 6mS, number of bumps = 18, 3 in each axis, unit operating. To meet MIL-STD-810D section 516.3, IEC 68-2-7, and DIN 40046 part 7.

7.6.2 Requirement. The unit is to survive these shock levels when in normal operating conditions. Continuous shock, acceleration amplitude = 40g, bump duration = 6mS, number of bumps = 6000, 1000 in each axis, unit operating. To meet MIL-STD-810D section 516.3, IEC 68-2-29, and DIN 40046 part 26.

7.7 Vibration.

7.7.1 Requirement. The unit is to survive these vibration levels when in normal operating conditions. Sinusoidal vibration, frequency 10 to 2000 Hz, swept at 1 octave per minute, maximum vibration amplitude 0.35mm at 10 to 60 Hz, acceleration amplitude 5g, test duration 7.5 hours, 2.5 hours each axis, unit operating. To meet MIL-STD-810D section 514.3, IEC 68-2-6, and DIN 40046 part 8.

7.7.2 Requirement. The unit is to survive these vibration levels when in normal operating conditions. Random vibration, acceleration spectral density = 0.05 g2/Hz, frequency band = 20 to 500 Hz, acceleration magnitude = 5g, test

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duration = 3 hours, 1 hour in each axis, unit not operating. To meet IEC 68-2-35 and DIN 40046 part 23.

7.8 Nuclear Survivability.

7.8.1 Requirement. When installed within a system, the power supply must survive as well as provide the necessary protection for the rest of the circuit to meet the requirements. The power supply outputs must turn off for at least 50ms after a radiation pulse is detected.

7.8.2 Requirement. The nuclear survivability design guidelines for the system are given below. These values shall be used for screening of components and approximate performance analysis. Note: All transient, surges and spikes are limited to 60 volts before the power supply as described in the internal Interface specification.

7.8.3 Requirement. After a nuclear event, the Power Supply should automatically recover to its normal operating condition.

7.8.4 Requirement. The unit shall survive the following Radiation Total dose (gamma + neutrons):-

7.8.5 Requirement. The unit shall survive the following Neutron fluence:-
Maximum gamma dose rate
- 2300rad (Si)
- 70'z nlcm2
- 3 x 149 rad/sec

7.8.6 Requirement. EMP. Each input lead shall be protected against the following pulse:-
Surge - 10A
Rise time - 5ns
Pulse width - 1pS

7.8.7 Requirement. The unit, when installed in the system shall survive the conditions for which the peak values are given below:-
Peak voltage - 75KV peak
Rise time - 5ns
Pulse width < 30ns
Peak current - 70A peak

7.9 Requirement. The unit shall be subject to Solar Radiation equivalent to XX in normal use. The unit shall meet this requirement when in general operating conditions.

7.10 Requirement. The unit shall be resistant to the following Chemicals:-

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Salt Corrosion Sodium Chloride solution, Salt fog (concentration = 5% @ 30 C, duration = 2 hour per cycle, storage = 40 C @ 93% rh, storage duration = 22 hours per cycle, number of cycles = 3), Suphur dioxide 0.3% by weight, AL-3 ethanedioi to 853150, Caster oil based hydraulic fluid, Phosphate esther based hydraulic fluid (OX-20), Petroleum based hydraulic fluid (OM-15), Silicon based hydraulic fluid (OX-50), Synthetic oil lubricant (OX-38), Solvent trichoroethylene, Fuel (70% Iso-octane/305toluene), electrolyte KOH (35%solution), H2SO4 (SG 1.25), CS Orthochlorobenzaimalonitrile, CR Dibenzoxazapine, CG Carbonyl Chloride. (phosgene), Vesicants:-H, HD, & HT-Mustard, Nerve Agents:- GA-Tabun, GB-Sarin, GD-Soman. VX. Unit not operating.

7.11 Requirement. The unit shall be resistant to the following Decontaminants:- Aqueous solutions Sodium hydroxide pH 10.3, Fullers earth, Sodium hypochlorite solution (5%), Sodium carbonate solution (5%), Ethanol, Ethylene tetrachloride, Kerosene, Water dispersible degreasing solvents (GUNK), and Detergents. Unit not operating.

7.12 Requirement. The unit shall be able to operate under general conditions over the following range of Pressure and Altitude:-

Pressure XX KPa to XX KPa

Altitude XX feet below sea level to XX feet above sea level.

7.13 Requirement. The unit shall be resistant to Fungal Growth at 90% at 28°C for 28days for the following types of fungus:- Aspsrgillus niger, Aspergillus terries, Aureobasidium Pullmans, Poecilomyces variety, Penicillilum funiculosum, Penicillilum ochrochlorons, Scopularlopsis brevicaulis, and Trlchoderma viride. Unit not operating.

7.14 Information. The unit will be used in one orientation, namely base to the bottom.

7.15 Requirement. The unit must be able to withstand repeated applications of a force of XX N from a 0.5 Kg ball pein hammer. This is to simulate abuse from members of the public.

7.16 Requirement. The unit must be resistant to the effects of insects and rodents. The unit shall meet this requirement when in general operating conditions.

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8 Physical

8.1 Information. General. XXXX.

8.2 Requirement. Size. Height: The unit shall be between XX and XX mm high. Width: The unit shall be between XX and XX mm wide. Depth: The unit shall be between XX and XX mm deep.

8.3 Requirement. The unit shall be fixed to the XXXX in the following manner:-

8.4 Requirement. The unit will be designed to be of minimum weight. In any case the unit weight shall be less than XX Kg.

8.5 Requirement. Materials. XXXX.

8.6 Requirement. Unit to be marked with Manufacturers name, part number, manufacturing date code, serial number, build state, country of origin, approval marks, input voltage + current + frequency ranges, nominal output voltages, output current ranges, fuse information if applicable, pinout. Other warnings if necessary. Markings are to meet the requirements of IEC68.

8.7 Requirement. Colour/Finish. XXXX.

8.8 Requirement. Cleaning. XXXX.

8.9 Requirement. The unit will/will not be provided with handles.

8.10 Requirement. Special Requirements. XXXX.

8.11 Requirement. The unit will/will not be potted.

8.12 Requirement. Construction. XXXX.

8.13 Requirement. Card Ejectors. XXXX.

8.14 Requirement. Non-Interchangeability Feature. XXXX.

8.15 Requirement. The following connector shall be used:-

8.16 Requirement. The pinout of the connectors shall be as follows:-

8.17 Requirement. The surface temperature of the unit shall not exceed those limits set down in IEC950 and the named derivatives. The unit shall meet this requirement when in general operating conditions.

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9 Commercial

9.1 Requirement. Price. Attempts must be made to minimise the cost of ownership, and the buy price, consistent with meeting requirements of this specification.

9.2 Requirement. Quality. To be designed and manufactured in premises covered by ISO9001/2/3. Design, Assembly and Test not to be subcontracted out to third parties without consent of (COMPANY NAME).

9.3 Information. Quantity. The estimated annual usage of the unit lies between XX and XX. The project is anticipated to run for XX years.

9.4 Requirement. Warranty. Warranty period to be 12 months from delivery. During that time repairs to be free of charge.

9.5 Requirement. Manufacturing Standards. Manufacturing standards are expected to be consistent with modern practice, and lead to a high yield of products free from aesthetic or functional deficiencies. 100% of products shall be subject to testing. See also paragraph 9.2 above.

9.6 Requirement. Certificate of Conformance. (COMPANY NAME) will/will not require a certificate of conformance. Each certificate will be required to cover one unit/delivery.

9.7 Requirement. Declaration of Conformity. A declaration of conformity will be required as detailed in the 'Approvals' section of this specification.

9.8 Requirement. Long term availability. The project lifetime is estimated to be XX years. Therefore the unit shall be available for XX years, and able to be supported for XX years after cessation of production.

9.9 Requirement. Packaging. The units shall be packaged using suitable protective materials such that no damage shall be incurred during transit. The modules may be subjected to a shock level of 1Grms during transport.

9.10 Requirement. Documentation. The deliverable documents are:- Circuit Diagram, Parts List, Stress Analysis, Thermal Analysis, Reliability Analysis, FMECA, Safety Analysis, EMC Analysis. Sales brochure. User Manual. Repair Manual. System integrators guide. D of C. C of C. All packaging and documentation to be in English.

9.11 Leadtime.

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9.11.1 Requirement. Pre-production units will be required XX weeks after placement of order.

9.11.2 Requirement. The first production units will be required XX weeks after placement of order.

9.11.3 Requirement. Subsequent production units will be required XX weeks after placement of order.

9.12 Requirement. Test Certificates. Individual production test certificates shall/shall not be supplied with each unit.

9.13 Requirement. Burden of Proof. It is the vendor's responsibility to prove that the product meets the requirements of this specification.

9.14 Requirement. ISO14000. The supplier must present a certificate to show compliance with ISO14000 or a plan to show the path to compliance.

9.15 Requirement. Disposal. The supplier must present a method to (COMPANY NAME) for eventual disposal of the units and their packaging.

9.16 Requirement. Century date change. The supplier must make a declaration that the century date change will not affect the ability of the supplier to provide the products and services required in this specification.

END OF SPECIFICATION

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